#### South Coast AQMD Technology Advancement Office Advisor's Meeting Summer 2009



Infrastructure Program Larry Watkins

# Natural Gas Infrastructure Update

- New additions:
  - Cal Cartage 2 LNG
     Refueling Station
  - Waste Management CNG
  - County of Orange CNG





### Natural Gas Infrastructure Update



- New additions:
  - Bear Valley USD Temporary CNG
  - Port of Long Beach Clean Energy LNG
     Station
  - Newport Mesa USD CNG Station
  - Downs Commercial Fueling LNG Station

### Natural Gas Infrastructure Update (cont'd)

- New / Pending:
  - USA Waste of California (WM) LNG from LFG at Altamont

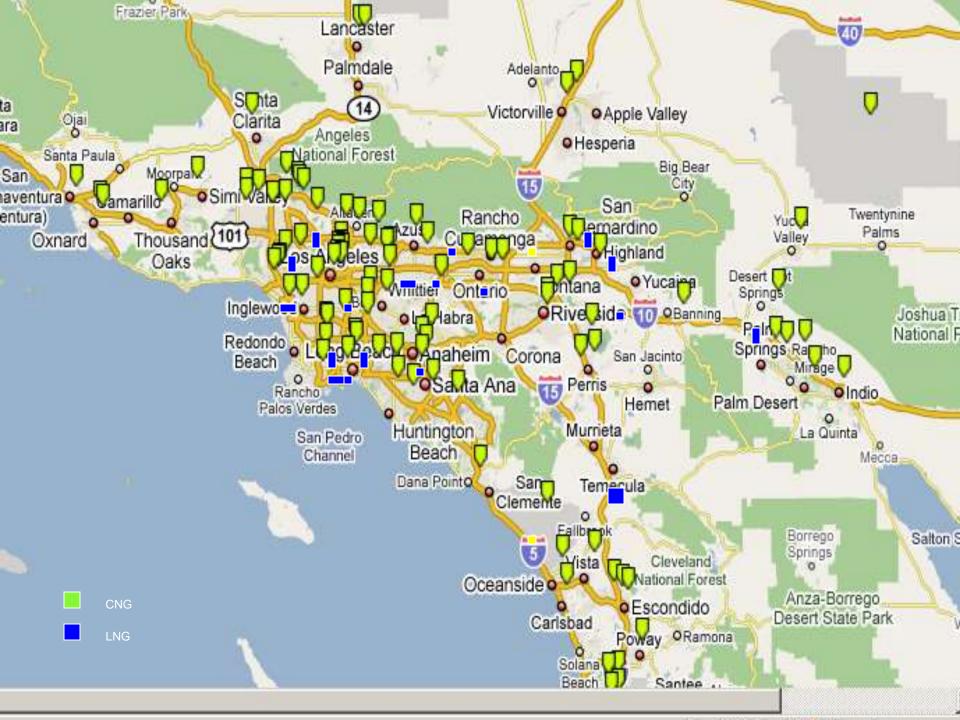
 California Cartage CNG Drayage Truck Demonstration

Foothill Transit / Clean Energy – CNG Station

# Natural Gas Infrastructure Update (cont'd)

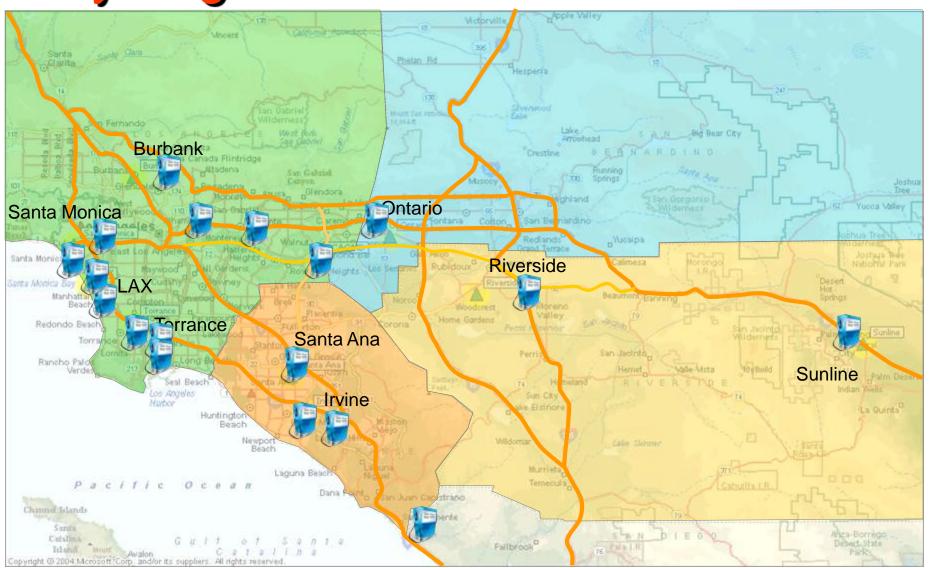
- New / Pending:
  - USA Waste of California (WM) New LNG Storage Tank at Long Beach LNG Refueling Station

Consolidated Waste Disposal – LNG Station



- Five City Program
  - Burbank Station update
- CARB Solicitation ARB Solicitation 08-606 for Mobile Refueling Stations
  - UCLA, Harbor City Chevron, Newport Beach Shell
- AQMD Hydrogen Station Maintenance Contract
- 700 bar Home Fueling Appliance

#### **Hydrogen Demonstration Stations**



- AQMD Hydrogen Station Maintenance Contract
  - 24 hour auto-dialing "Help Phone" at the fueling dispenser area
  - Train staff in the proper use of the fueling dispenser, card-lock system and vehicle fueling procedures
  - Repair unsafe or inoperable equipment or parts of the fueling system as needed
  - Detailed vehicle fueling reports (paper and electronic)
  - Total station monthly summary reports (paper and electronic)

- University of California, Los Angeles
  - Hydrogenics HyStat-A Electrolyzer
  - 350 & 700 bar dispensing
  - 33.3% renewable from LADWP
  - Generate 140 kg/day of hydrogen on-site
    - SMR
    - Electrolysis
  - Publicly accessible from major freeways and downtown LA
  - Funding of \$1,723,753 from AQMD in the form of used equipment (\$1,323,753), and cash (\$400,000).

## Hydrogen Infrastructure Update (cont'd)

- Chevron / Mebtahi Station Services
  - Pacific Coast Hwy and Western Ave., Harbor City (CaFCP Action Plan)
  - 350 & 700 bar dispensing
  - High pressure 3 pack composite tube trailer
     @ 430 bar + small booster compressor
  - Carbon fiber overwrapped steel tubes @ 15,000 psig for 700 bar cascade fills
  - 100 kg/day H2,

- Shell Hydrogen
  - 1600 Jamboree Blvd., Newport Beach (CaFCP Action Plan)
  - Will competitively bid equipment components
  - 100 kg/day at 350 and 700 bar
  - Forecourt hydrogen production (SMR) along with compression, storage and dispensing
  - Open 24/7, retail setting

- 700 bar Residential Home Fueling Appliance
  - Chrysler, Daimler AG, Ford, GM, Honda, Hyundai, Nissan, Toyota, Volkswagen
  - Phase 1 Feasibility Study
    - comprehensive world-wide search Of Commercially available technology
    - near term component development
  - Phase 2a includes validated performance specifications, develop an RFP for potential system integrators create Alpha prototype

<ul><li>Partners</li></ul>	Funding	Percent
DOE	\$417,600	80%
NEC	41,000	8%
AQMD	63,400	12%
Total*	\$522,000	100%